



Canada Mortgage
and Housing Corporation

Société canadienne
d'hypothèques et de logement

Development of a Guide to the Planning, Design and Construction of Housing in the North

A CMHC Paper

prepared for the
Native Business Summit
23 - 27 June 1986
Convention Centre
Toronto, Ontario

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INTRODUCTION

There is a growing awareness that much of the housing that has been built in the North is not proving to be appropriate for northern environments. The poor durability of a large portion of the existing stock is also contributing to poor living conditions as well as to the very high costs of northern housing.

Notwithstanding these problems, many designers, builders and housing authorities have acquired considerable experience in designing and building housing for the north. This is providing a clearer understanding of critical planning, design and construction issues and indications of both successful and unsuccessful ways of addressing

DEVELOPMENT OF A GUIDE TO THE PLANNING, DESIGN AND CONSTRUCTION OF HOUSING IN THE NORTH

The Canada Mortgage and Housing Corporation, in association with the Boreal Institute, has research in construction as this, non-Indian and northern Native Canada is, therefore, undertaking the research initiatives described in this paper with the objective of synthesizing available knowledge and experience and developing a comprehensive guide to planning, designing and constructing northern housing.

INTRODUCTION TO THIS DOCUMENT

The initiatives, that are designed to lead to the production of a comprehensive guide document, comprise:

Project 1: the development of guidelines dealing with significant issues that must be considered in the planning and architectural design of northern

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the Native Business Summit

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the performance of buildings in the North and problems in the

northern and

Project 2: the scientific and technical evaluation of a wide variety of building systems and practices.

More information on these projects is provided in Appendices A, B and C.

Research Division

Canada Mortgage and Housing Corporation

June 1986

an output from an integrated guide, which will provide information on planning, design and construction activities. In particular, the output from Project 2 will provide valuable input into Project 1.

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INTRODUCTION

There is a growing awareness that much of the housing that has been built in the North is not proving to be appropriate for northern lifestyles. The poor durability of a large portion of the existing stock is also contributing to poor living conditions as well as to the very high costs of northern housing.

Notwithstanding these problems, many designers, builders and housing agencies have acquired considerable experience in designing and building housing for the north. This is providing a clearer understanding of critical planning, design and construction issues and indications of both successful and unsuccessful ways of addressing these issues.

The Canada Mortgage and Housing Corporation in collaboration with the Institute for Research in Construction at NRC, and Indian and Northern Affairs Canada is, therefore, undertaking the research initiatives described in this paper with the objective of capitalizing on available knowledge and experience and developing a comprehensive guide to planning, designing and constructing northern housing.

PRODUCTION OF GUIDE DOCUMENT

The initiatives, that are designed to lead to the production of a comprehensive guide document, comprise:

- **Project 1:** the development of guidelines dealing with significant issues that must be considered in the planning and architectural design of northern housing;
- **Project 2:** the collection and presentation of information on the performance of current building systems and practices in the north; and
- **Project 3:** the scientific and technical evaluation of a wide variety of building systems and practices.

(NOTE: More information on these projects is provided in Appendices A, B and C.)

The output from the foregoing projects will be used in developing an integrated guide, which will provide a balanced perspective on planning, design and construction activities. In particular, the output from Project 2 will provide valuable input into Project 3.

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APPENDIX "A"

APPENDIX "A"

PROJECT 1

PLANNING AND ARCHITECTURAL CONSIDERATIONS FOR NORTHERN HOUSING

Objective

The objective of this study is to develop guidelines on the significant issues that must be considered in the planning and architectural design of northern housing.

Areas of Study

The areas of study include climatic conditions, northern life styles, housing and its relationship to the community, logistics and economics of construction, and maintenance and operation of buildings.

Methodology

Consultation with people living and working in the North has played an important role in the development of this study. Numerous individuals representing the different geographical regions and ethnic populations of the North are actively participating in outlining the problems and suggesting solutions.

Audience

This document will be useful to northern designers and architects, the construction industry, housing deliverers, regulatory agencies, and agencies representing northern groups.

Contractor

This project is being carried out by Don Jossa and Associates based in Yellowknife, N.W.T.

APPENDIX "B"

PROJECT 2

EXAMPLES OF NORTHERN CONSTRUCTION PRACTICE

Objective

The objective of this project is to provide designers with examples of existing building practices that can be used as a basis for improvement in the design of northern housing.

Areas of Study

The areas of study will include site development, building foundations, exterior envelope, envelope penetrations, space heating, ventilation and heat recovery, and water and sewage systems.

Methodology

The consultant will compile the information from different regions of the North. This information will be examined and presented in some 40 detailed drawings accompanied by written descriptions, and commentaries on the practicality of their implementation and their in-use performance.

Audience

The results of the study will be useful to northern designers and builders, as well as to agencies involved in developing and providing training skills for those involved in northern construction.

Contractor

This project is being carried out by Burdett-Moulton, Architects & Engineers based in Frobisher Bay, N.W.T.

APPENDIX "C"

PROJECT 3

TECHNICAL CONSIDERATIONS FOR NORTHERN HOUSING

Objective

The objective of this study is to provide a guide to ways of designing durable and efficient buildings for the North.

Areas of Study

The areas of study include climate, permafrost, foundations, the physics of condensation, the building envelope, ventilation, space heating and water heating, water and sewage systems, electricity supply and control, and fire safety requirements.

Methodology

The technical aspects of building will be examined, discussed and illustrated in detail. This work will be used in combination with the output from Project 2, Examples of Northern Construction Practice, to develop a guide to ways of designing and constructing buildings for Canada's North.

Audience

The results of this study will be useful to designers, builders, building product suppliers, and agencies involved in providing training skills for those involved in northern construction.

Contractor

This project is being carried out by the Institute for Research in Construction at NRC, in collaboration with Indian and Northern Affairs Canada.

APPENDIX "D"

ORDER FORM

Please check which of the following of the draft reports you wish to receive for purposes of review and comments.

Project 1: Planning and Architectural Considerations for Northern Housing

Project 2: Examples of Northern Construction Practice

Project 3: Technical Considerations for Northern Housing

Name

Company or organization

Address

City

Prov.

Postal Code

Mail completed form to:

Research Division
CMHC
682 Montreal Road
Ottawa, Ontario
K1A 0P7

Draft reports are being prepared in English only. However, French versions of final reports will be prepared.

APPENDIX "D"

DRUGS FOR

to receive credit with the following of the place where you will
be staying for the duration of your stay and conference

Project 1: Building and Infrastructure Construction

Project 2: Examples of Northern Construction Practice

Project 3: Technical Guidelines for Northern Construction

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